

AD665377

*Geophysical Data Report*

## GEOMAGNETIC DATA BANGKOK, THAILAND – JULY-SEPTEMBER 1966

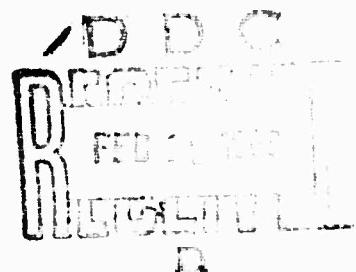
By: DOUGLAS J. BARNES JOHN CHAPMAN

*Prepared for:*

U.S. ARMY ELECTRONICS COMMAND  
FORT MONMOUTH, NEW JERSEY 07703

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BANGKOK, THAILAND



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September 1967

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**CONTENTS**

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<b>LIST OF ILLUSTRATIONS . . . . .</b>	<b>iii</b>
<b>LIST OF TABLES . . . . .</b>	<b>iii</b>
<b>I      INTRODUCTION . . . . .</b>	<b>1</b>
<b>II     DISCUSSION . . . . .</b>	<b>2</b>
<b>DISTRIBUTION LIST . . . . .</b>	<b>15</b>

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## ILLUSTRATIONS

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Fig. 1	Monthly Mean Total Geomagnetic Field Intensity (F) at Bangkok--July 1966 . . . . .	6
Fig. 2	Monthly Mean Total Geomagnetic Field Intensity (F) at Bangkok--August 1966 . . . . .	7
Fig. 3	Monthly Mean Total Geomagnetic Field Intensity (F) at Bangkok--September 1966 . . . . .	8
Fig. 4	Magnetograms for the Three Most Disturbed Days in July 1966 . . . . .	9
Fig. 5	Magnetograms for the Three Most Disturbed Days in August 1966 . . . . .	10
Fig. 6	Magnetograms for the Three Most Disturbed Days in September 1966 . . . . .	11
Fig. 7	Magnetograms for Days of Sudden Commencements: July and August 1966 . . . . .	12
Fig. 8	Magnetograms for Days of Sudden Commencements: September 1966 . . . . .	13

## TABLES

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Table I	Geomagnetic Site at Bangkok, Thailand. . . . .	1
Table II	Mean Hourly Total Geomagnetic Field Intensity (F) at Bangkok--January 1966 . . . . .	3
Table III	Mean Hourly Total Geomagnetic Field Intensity (F) at Bangkok--February 1966 . . . . .	4
Table IV	Mean Hourly Total Geomagnetic Field Intensity (F) at Bangkok--March 1966 . . . . .	5

## I INTRODUCTION

Geomagnetic observations are being carried out at the Electronics Laboratory of the Military Research and Development Center (MRDC), a joint Thailand-United States organization at Bangkok, Thailand. The cooperation and participation of the staff members of the Thailand Ministry of Defense and the support of the United States Advanced Research Projects Agency and the United States Army Electronics Laboratory have made it possible for the data presented in this report to be accumulated.

The information about the site in Table I is pertinent.

Table I  
GEOMAGNETIC SITE AT BANGKOK, THAILAND

Geographic		Geomagnetic		DIP *	Declination *
Latitude	Longitude	Latitude	Longitude		
13.72°N	100.57°E	2.5°N	169.83°E	10°27'N	0°10'W

The equipment at the site consists of the following:

Instrument: Varian V-4938A Rubidium Magnetometer

Full-Scale Sersitivity:  $100\gamma$  ( $10^5\gamma = 1$  gauss)

Chart Speed: One inch per hour

Time Scale: Local time GMT + 7 hours

Range: Step-variable, in  $90\gamma$  increments.

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\* Values obtained from the Geodesy Department, Ministry of Defense, Bangkok, Thailand.

## II DISCUSSION

The data contained in this Bulletin are obtained with a Varian V-4938A rubidium magnetometer. The data base is available in two forms: (1) the continuous magnetogram recording and (2) a digital printout every 2 minutes, both measuring the total geomagnetic field intensity ( $F$ ).

The hourly mean values of the total geomagnetic field intensity are given in Tables II through IV and are obtained by calculation from the digital data. The tabulation is for local mean time (GMT + 7 hours). The monthly mean values vs. local time of day are given in the bottom line of the tables and plotted in Figs. 1 through 3.

The Varian chart recorder used with the V-4938A magnetometer has an automatic range-changing system that shifts the range of the recording by 90 $\circ$  when either chart extremity is reached. In Fig. 4 et seq. the range of  $F$  shown at the left of the chart is for the beginning of the day.

Magnetograms with a mean local time scale (GMT + 7 hours), showing disturbed days are given as follows:

- (1) Figures 4 through 6--the three most disturbed days of the month.
- (2) Figures 7 through 9--other days of interest--e.g., those showing a sudden commencement, or highly disturbed ( $k_p \geq 5$ ).

Table II

## MEAN HOURLY TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK -- JULY, 1966

\*

Day	Hr	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	761	759	752	751	750	750	750	758	761	772	795	788	784	771	762	751	752	749	755	761	752	752	754	754	
2	753	748	758	755	756	756	766	773	775	775	782	784	776	766	768	759	756	760	784	763	761	760	760	760	
3	760	756	760	760	761	760	765	770	777	783	793	790	796	787	781	777	763	755	755	758	759	759	759	758	
4	757	758	759	760	761	762	764	770	775	778	784	790	750	791	782	767	760	750	752	747	754	755	755	755	
5	744	743	752	752	754	766	760	765	782	798	794	750	784	768	755	750	744	750	742	750	750	747	752	752	
6	748	749	755	755	757	760	763	769	780	799	804	800	707	768	782	769	759	752	751	752	756	761	758	759	
7	761	759	760	759	759	761	762	770	778	789	781	793	746	784	770	755	746	747	743	750	750	750	750	750	
8	753	753	753	757	759	761	770	787	803	839	841	843	--	799	765	735	712	719	723	728	721	723	725	724	
9	723	721	721	725	725	726	721	749	730	723	736	750	718	752	668	636	649	665	677	675	674	690	694	705	
10	710	707	704	703	707	710	713	710	729	744	771	745	74	698	704	705	708	689	668	682	712	709	710	712	
11	713	712	715	715	714	718	725	732	736	752	751	756	735	740	740	731	725	723	723	721	722	722	732	732	
12	733	730	729	730	736	732	724	727	732	747	750	734	726	--	732	720	716	712	715	723	730	745	752	751	
13	753	756	756	759	757	757	760	771	786	800	812	824	825	824	813	800	785	771	768	767	467	768	768	770	
14	774	776	777	777	774	780	783	790	800	817	825	825	819	815	802	786	779	783	785	783	782	780	779	779	
15	785	786	780	781	789	785	798	806	818	832	849	838	831	823	81	797	786	785	785	788	792	791	801	792	
16	792	790	803	802	795	805	804	806	809	817	918	836	830	821	805	801	795	791	788	787	786	787	791	793	
17	788	788	784	783	782	782	793	796	805	815	805	816	818	810	206	790	768	768	775	771	780	779	779	775	
18	783	783	779	771	783	731	785	796	810	820	826	826	803	800	790	783	775	780	783	776	779	781	779	779	
19	786	785	783	781	784	785	793	801	807	830	839	822	815	814	811	815	814	810	782	779	779	776	777	776	
20	781	783	776	781	783	783	792	799	803	816	828	839	823	816	811	815	814	810	782	779	779	773	773	780	
21	779	775	776	776	779	751	800	812	821	823	824	802	796	796	786	784	786	782	781	779	773	782	780	780	
22	790	777	779	774	773	779	783	787	789	790	799	804	749	795	792	786	777	768	764	767	771	771	773	775	
23	770	773	771	771	774	775	774	780	786	796	814	807	814	791	793	798	786	778	775	777	775	777	775	776	
24	774	775	775	774	776	776	784	784	809	799	800	800	806	810	802	780	779	776	776	780	780	781	780	780	
25	782	781	782	780	780	785	793	805	896	840	844	844	835	817	800	795	784	784	785	--	--	--	--	783	
26	782	782	781	780	781	783	782	785	787	790	822	802	814	818	817	805	793	788	788	784	784	783	785	785	
27	788	799	792	788	787	786	796	796	812	831	821	825	923	858	821	801	783	785	787	773	765	793	793	793	
28	791	778	779	777	781	782	786	791	809	820	805	805	803	796	793	784	774	770	761	769	764	766	761	770	
29	782	779	780	776	772	780	786	790	799	825	835	835	815	801	789	785	788	789	790	790	785	786	793	793	
30	793	796	998	792	795	802	817	832	845	870	865	830	805	788	796	792	791	790	788	788	785	785	785	785	
31	785	783	783	783	792	796	799	800	816	832	844	847	847	834	821	800	790	782	777	788	785	785	784	784	
Mean	767	766	766	766	769	770	773	779	787	799	807	800	796	785	776	768	762	761	763	763	763	764	767	767	

\* LOCAL TIME = GMT + 7 HOURS.

TABULATED VALUES ARE THE LAST THREE DIGITS ONLY OF THE TOTAL FIELD STRENGTH (F) IN Y.

TO OBTAIN TOTAL FIELD STRENGTH IN Y ADD 41,000

Table II

## MEAN HOURLY TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK — AUGUST 1966

*	Day	Hr	00	01	02	03	C-4	05	06	07	08	C-3	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	778	775	776	779	780	781	792	817	890	826	830	820	818	813	817	810	805	794	790	792	793	792	756	795	788	
2	793	789	788	787	789	795	800	800	805	812	820	821	813	805	809	803	796	790	789	789	786	787	787	786	788	
3	788	788	788	787	785	786	796	805	820	835	844	854	833	825	813	813	807	790	790	795	775	755	755	755	752	
4	770	770	772	772	773	776	781	788	806	828	842	836	835	834	816	800	790	774	783	778	—	—	755	760	770	
5	775	774	772	772	779	773	779	779	771	785	797	798	807	802	816	810	779	794	787	768	771	764	767	774	767	
6	774	776	778	778	777	778	782	790	805	807	810	819	800	797	800	799	792	775	779	783	784	780	776	780	780	
7	782	782	784	785	781	784	782	781	786	792	764	795	806	810	812	811	798	791	786	780	787	787	788	788	788	
8	787	787	788	788	785	790	795	803	815	895	831	825	820	820	818	818	800	792	795	792	787	790	790	792	792	
9	792	793	787	787	790	791	789	794	800	808	812	819	822	818	827	830	814	806	794	793	796	793	785	786	792	792
10	792	789	774	800	795	796	793	798	812	812	825	813	810	806	799	806	800	787	777	780	771	773	771	770	770	
11	777	783	783	785	787	786	793	797	807	815	814	810	802	791	780	777	792	780	773	781	765	768	761	775	775	
12	782	774	782	782	783	784	784	780	802	807	845	823	910	809	781	767	765	768	755	765	765	765	772	772	776	777
13	776	790	784	789	788	795	805	810	810	814	815	804	800	789	783	985	781	781	777	777	779	780	780	780	782	782
14	781	777	780	783	783	788	788	789	798	806	814	806	802	789	776	764	761	763	760	773	781	781	783	783	783	783
15	785	788	983	788	785	788	793	793	793	790	810	821	818	804	790	767	759	759	747	749	750	746	746	756	756	758
16	759	761	759	969	764	764	768	771	776	785	791	790	738	779	769	760	757	753	755	757	756	756	757	757	753	753
17	760	760	760	761	760	763	765	765	778	800	799	799	795	791	791	789	772	764	760	760	760	760	760	763	760	760
18	766	767	767	766	766	767	775	786	805	814	815	810	809	804	803	791	769	742	733	730	756	756	757	757	763	
19	747	747	746	750	754	758	766	774	780	795	779	755	769	773	777	775	755	724	696	710	745	747	753	748	748	748
20	769	767	765	770	773	775	762	770	785	778	782	784	780	780	755	749	748	750	753	756	755	754	756	756	756	756
21	757	759	760	760	760	760	767	773	782	790	790	799	787	786	789	779	772	762	765	769	770	791	769	770	770	770
22	768	763	770	766	767	768	782	775	786	805	805	808	807	803	792	785	783	779	779	776	777	778	780	780	780	773
23	769	776	773	775	771	767	766	770	790	810	820	820	818	814	811	830	810	769	751	740	743	760	760	756	756	756
24	763	749	742	765	765	756	755	760	747	782	794	805	807	796	794	786	785	772	761	742	748	747	750	763	763	763
25	769	764	761	772	772	767	770	778	797	814	820	822	815	804	796	795	772	767	764	765	770	774	773	774	774	774
26	772	778	775	770	775	775	780	780	785	793	800	803	819	808	799	793	789	789	779	778	779	780	780	781	781	781
27	780	780	779	776	776	777	781	780	787	802	813	816	807	803	795	985	777	761	784	784	779	779	776	777	777	
28	778	774	776	776	776	776	783	790	799	808	814	818	812	794	786	781	780	785	781	781	781	779	779	779	779	779
29	776	785	782	780	780	779	782	781	787	796	810	820	821	815	802	793	792	789	785	787	820	801	793	793	793	
30	794	790	789	793	790	792	770	753	755	740	760	770	775	757	752	760	757	754	767	770	775	764	766	767	767	767
31	740	790	744	774	730	675	680	710	750	770	762	755	744	720	725	732	737	731	732	736	742	742	742	742	742	742
Mean	774	776	773	777	772	776	774	777	792	802	807	809	803	799	792	786	780	771	770	771	769	770	771	771	771	771

\* LOCAL TIME = GMT + 7 HOURS.

TABULATED VALUES ARE THE LAST THREE DIGITS ONLY OF THE TOTAL FIELD STRENGTH (F) IN  $\gamma$ .  
TO OBTAIN TOTAL FIELD STRENGTH IN  $\gamma$  ADD 41,000

Table II

## MEAN HOURLY TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK -- SEPTEMBER 1966

*	Day	Hour	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	741	756	742	740	737	733	745	746	759	762	737	766	763	760	747	744	720	734	760	737	757	757	738			
2	725	740	741	731	726	742	737	741	741	766	773	770	767	733	759	762	767	758	759	760	770	765	752	747		
3	756	760	765	765	766	769	765	776	762	811	824	820	734	783	779	726	685	663	670	700	710	692	680	666		
4	754	662	660	695	734	629	643	529	552	553	582	620	580	587	585	583	594	594	598	625	633	656	669	659		
5	684	680	639	681	691	682	694	692	700	708	715	717	724	714	712	714	714	714	710	696	709	694	700	704		
6	700	695	699	700	704	721	732	731	745	754	744	734	747	736	740	725	704	707	710	711	702	701	740	725		
7	729	729	725	724	726	732	735	741	746	757	766	761	756	746	745	734	734	737	735	726	734	720	707	710		
8	716	716	717	719	726	731	739	740	747	765	737	760	747	726	721	705	695	650	662	693	682	683	714	686		
9	692	701	707	718	710	716	718	730	747	765	765	771	762	726	725	772	720	715	705	708	711	722	722	743		
10	729	727	729	730	727	730	735	726	735	741	743	740	741	734	743	750	738	716	712	725	729	739	740	721		
11	732	742	743	740	741	740	740	746	751	770	779	782	780	764	758	759	756	754	752	719	742	741	740	745		
12	742	744	743	744	743	744	744	747	755	770	784	783	774	746	762	750	740	740	740	740	741	744	744	739		
13	739	741	744	747	751	750	755	766	774	760	765	765	766	774	762	759	754	752	655	740	741	744	744	743		
14	748	748	750	749	749	750	752	761	780	800	812	811	802	795	780	773	769	769	766	765	763	770	771	762		
15	752	762	752	750	763	768	763	740	769	790	784	776	766	757	757	750	731	739	744	731	744	747	745	743		
16	744	745	744	737	742	742	737	732	739	764	782	787	782	779	776	765	760	759	760	749	750	751	752	752		
17	746	745	744	745	745	747	757	752	763	777	767	777	773	767	760	758	755	753	755	751	749	744	746			
18	746	749	749	751	751	749	752	767	783	796	794	785	779	775	767	739	757	753	750	744	743	750	755	759		
19	761	760	759	760	760	763	763	760	760	790	834	867	817	812	795	734	774	774	772	764	734	747	752	752		
20	754	757	760	761	762	760	745	762	783	797	812	822	814	799	789	739	750	755	758	738	727	719	717	732		
21	737	746	755	746	744	740	740	755	768	766	782	781	787	780	765	755	744	746	740	751	740	742	746			
22	746	745	745	744	746	743	746	745	757	771	795	797	797	789	778	760	753	749	747	746	745	747	751	753		
23	746	744	744	742	751	750	751	750	759	773	788	791	793	785	771	761	792	784	771	759	762	751	742	749		
24	739	705	720	736	735	734	745	757	770	793	807	808	798	786	780	760	741	--	--	--	--	--	--	--		
25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
26	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
28	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
31	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--			
Mean	735	733	734	736	739	739	736	747	763	766	775	766	759	754	745	737	730	726	732	732	734	732	732	732		

\* LOCAL TIME = GMT + 7 HOURS.

TABULATED VALUES ARE THE LAST THREE DIGITS ONLY OF THE TOTAL FIELD STRENGTH (F) IN Y.

TO OBTAIN TOTAL FIELD STRENGTH IN Y ADD 41,000

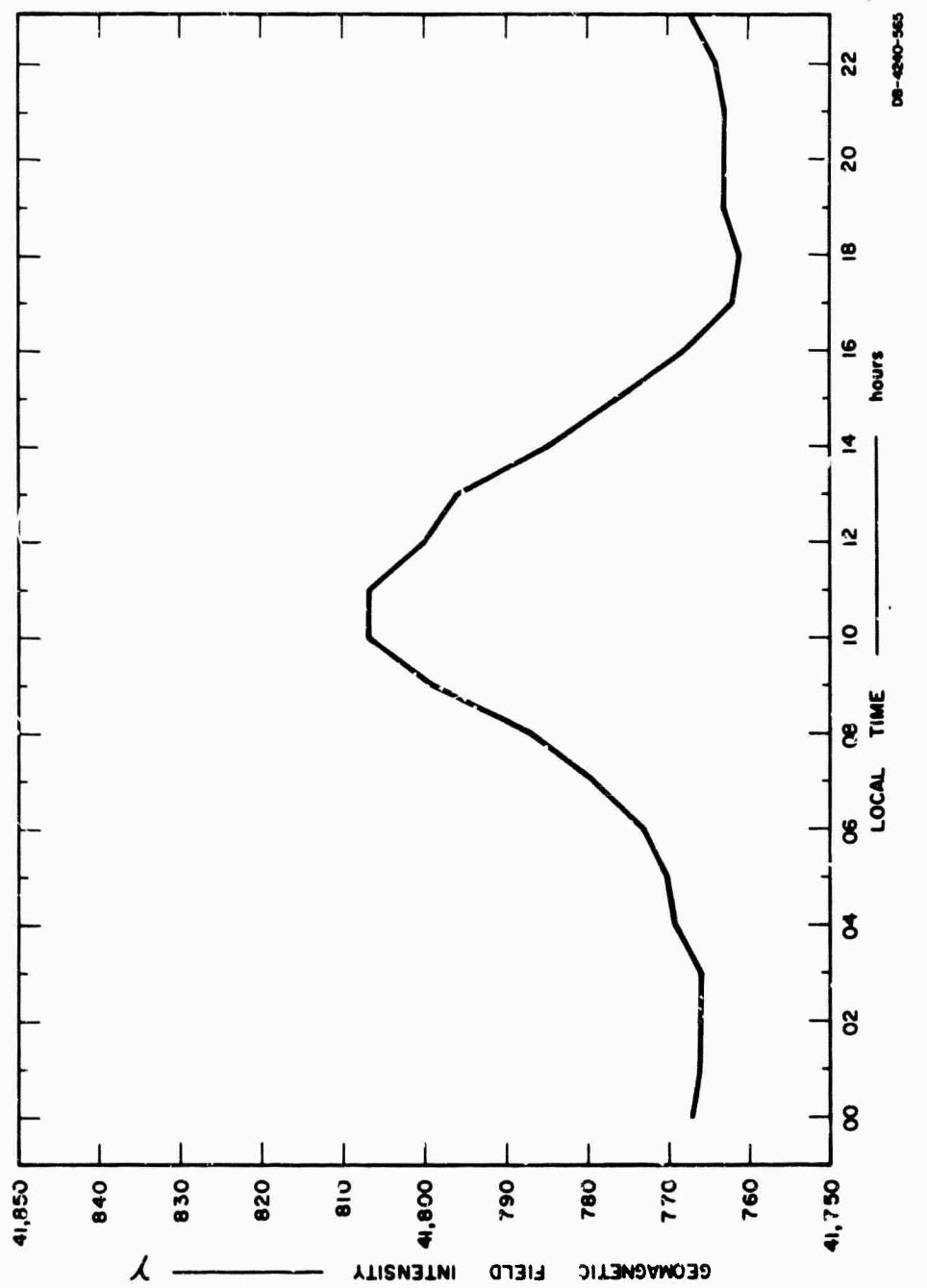


FIG. 1 MONTHLY MEAN TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK — JULY 1966

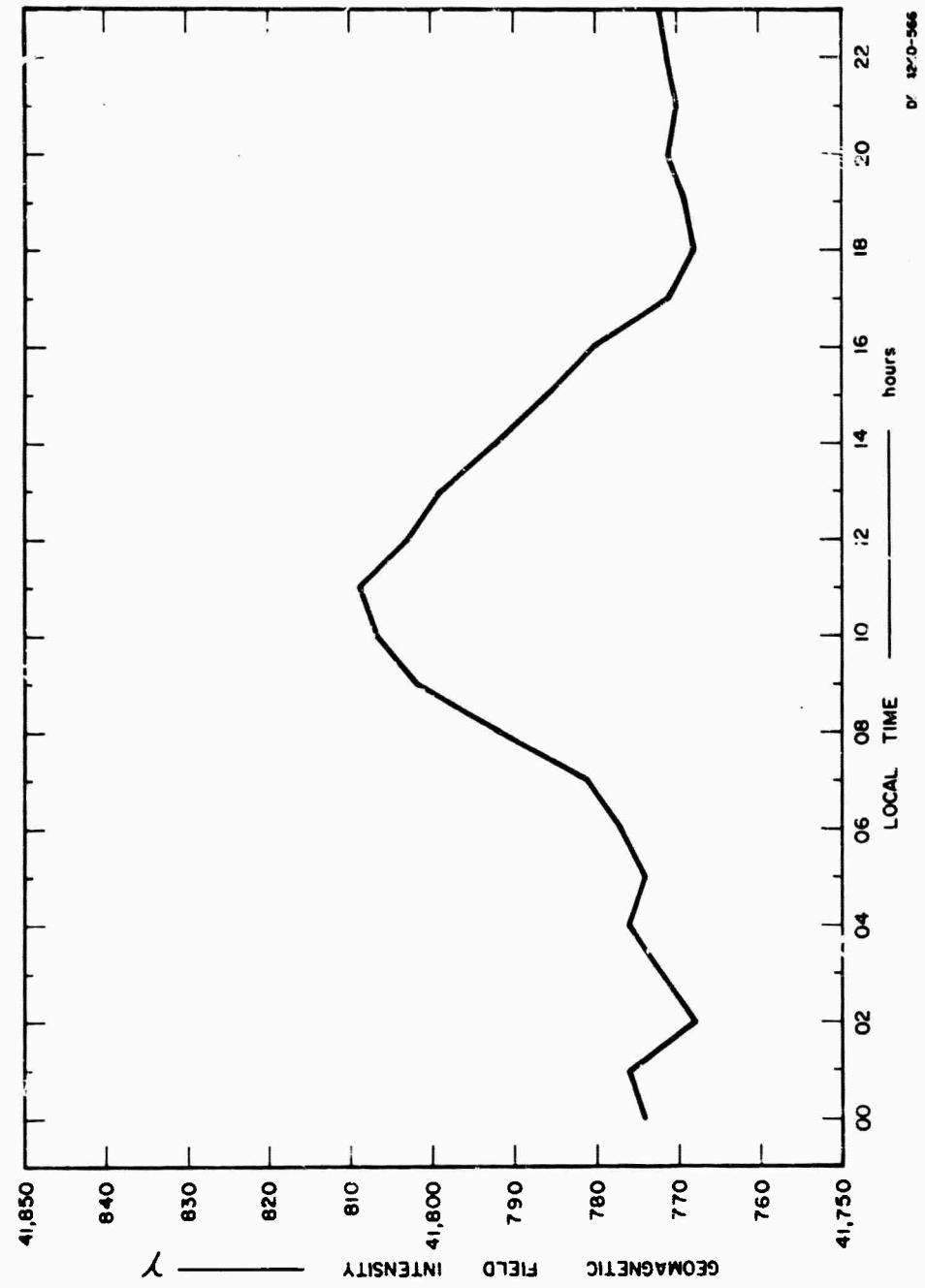


FIG. 2 MONTHLY MEAN TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK — AUGUST 1966

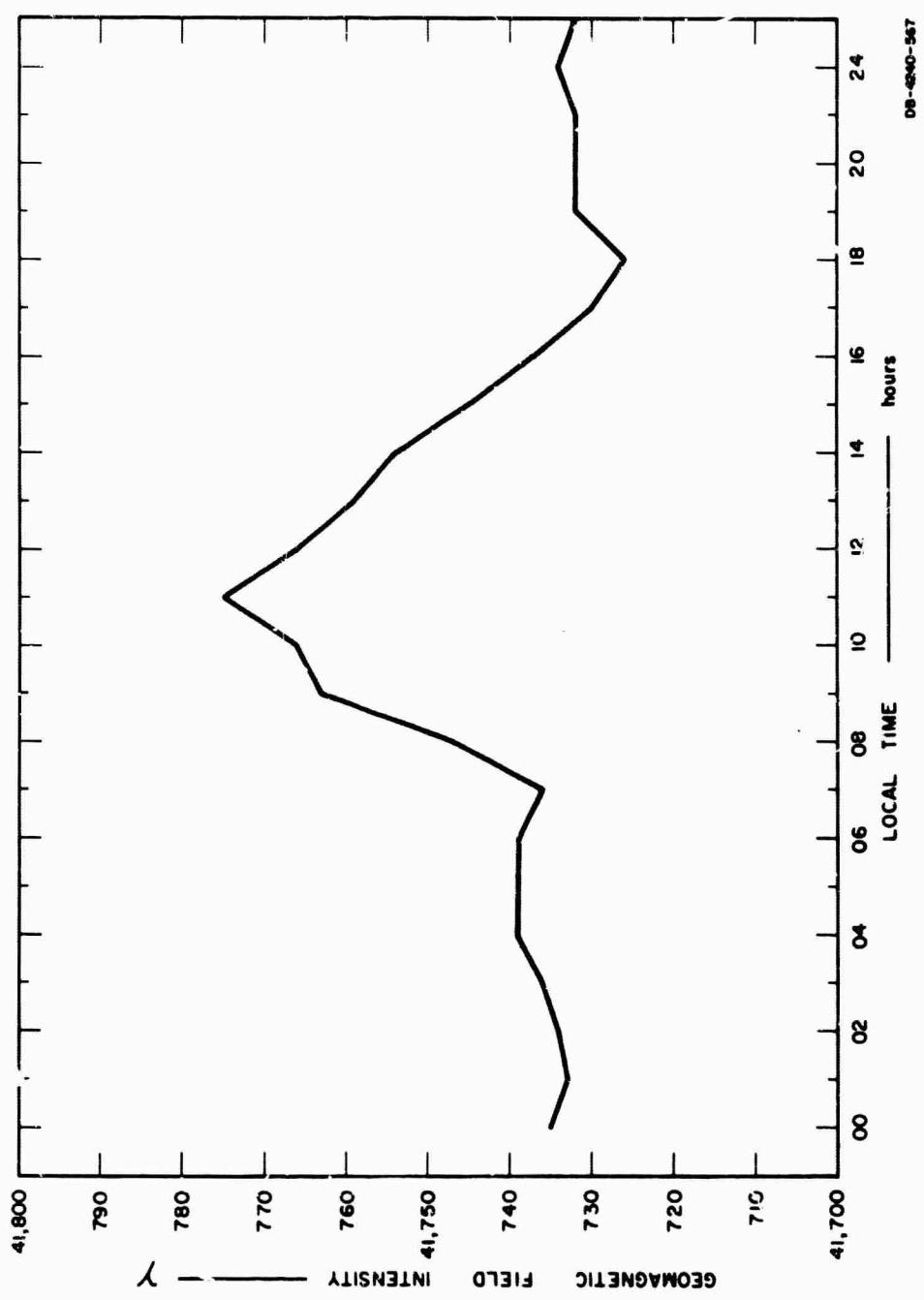


FIG. 3 MONTHLY MEAN TOTAL GEOMAGNETIC FIELD INTENSITY (F) AT BANGKOK — SEPTEMBER 1966

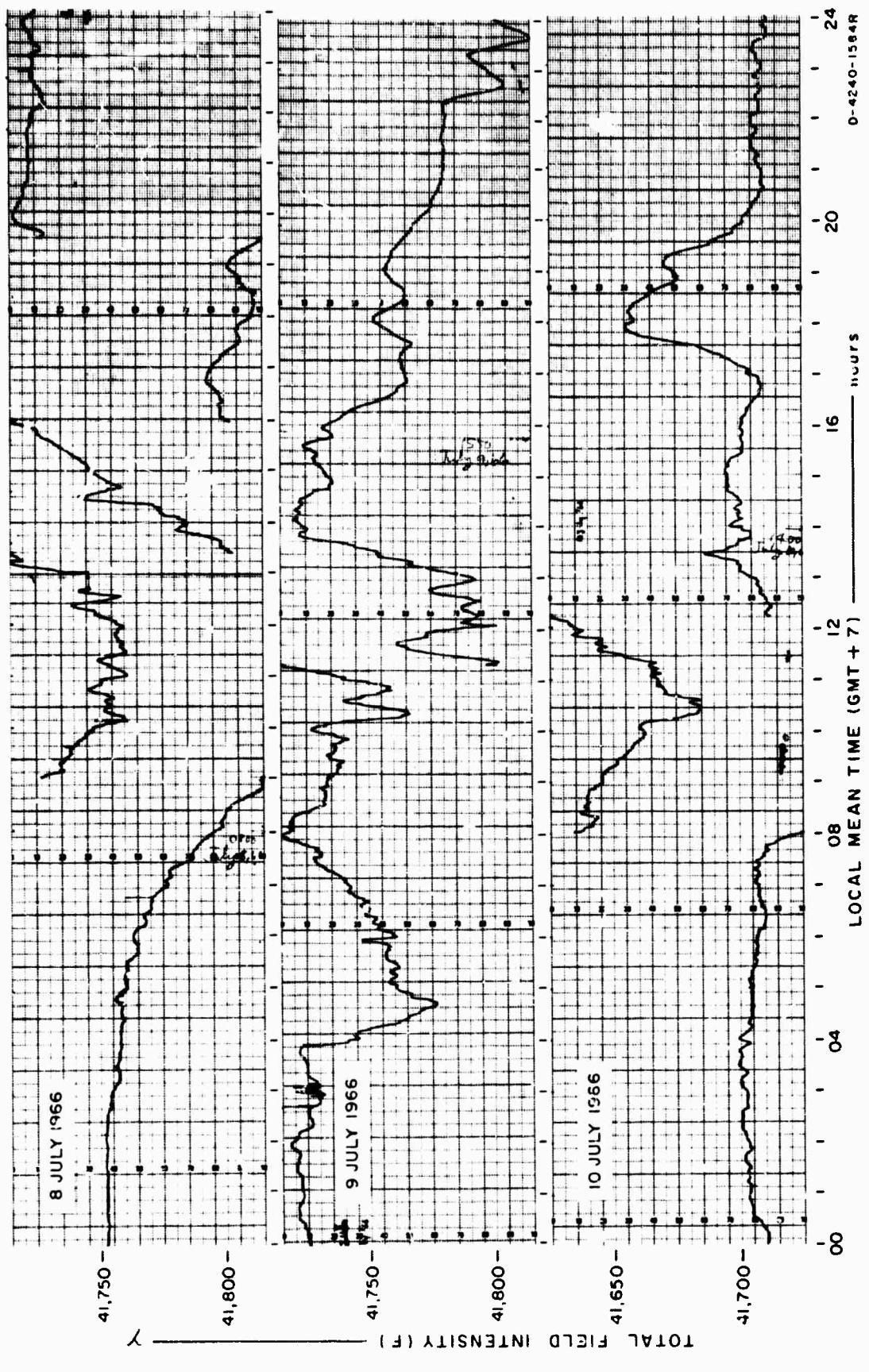


FIG. 4 MAGNETOGrams FOR THE THREE MOST DISTURBED DAYS IN JULY 1966

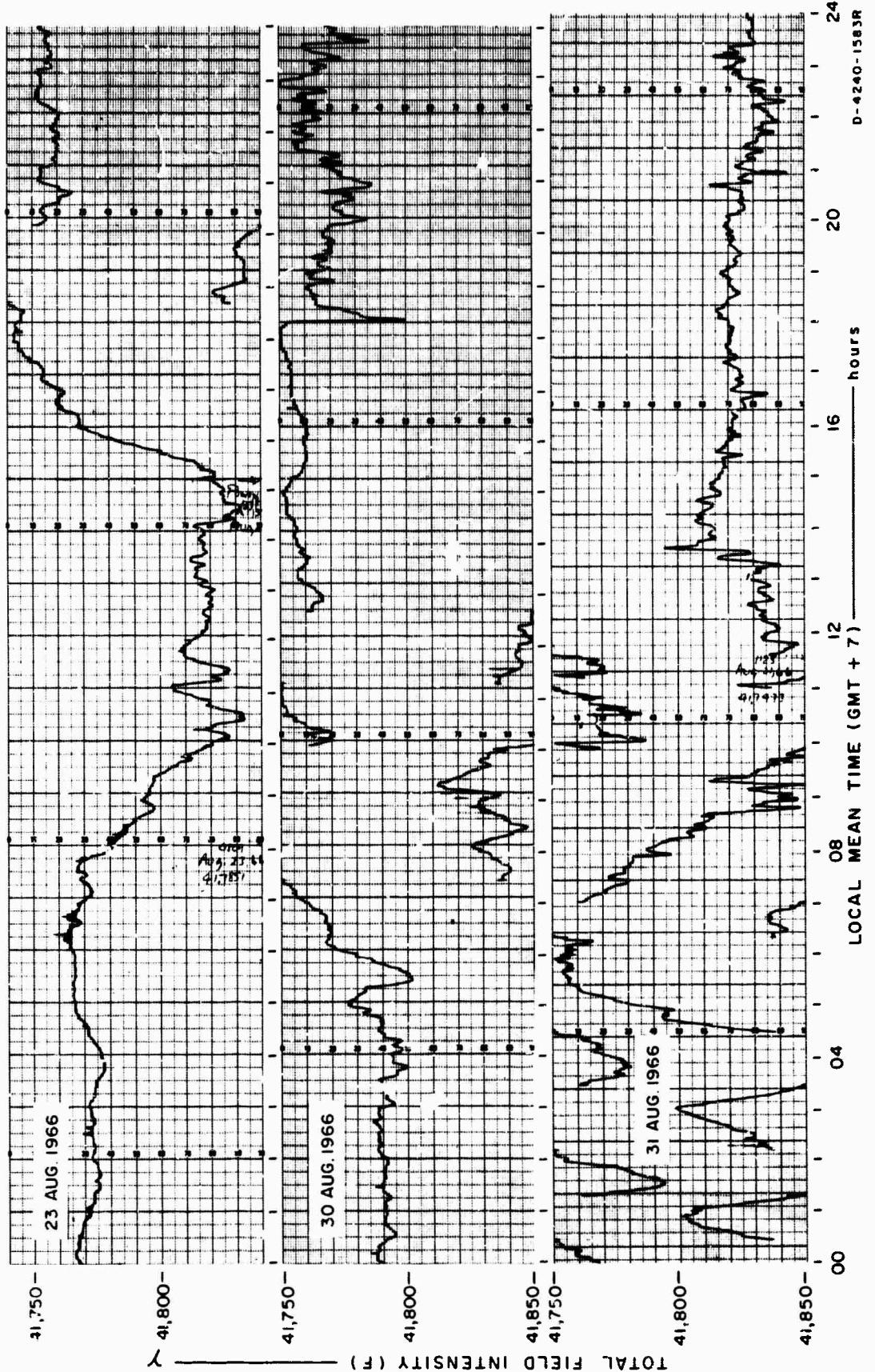


FIG. 5 MAGNETOGrams FOR THE THREE MOST DISTURBED DAYS IN AUGUST 1966

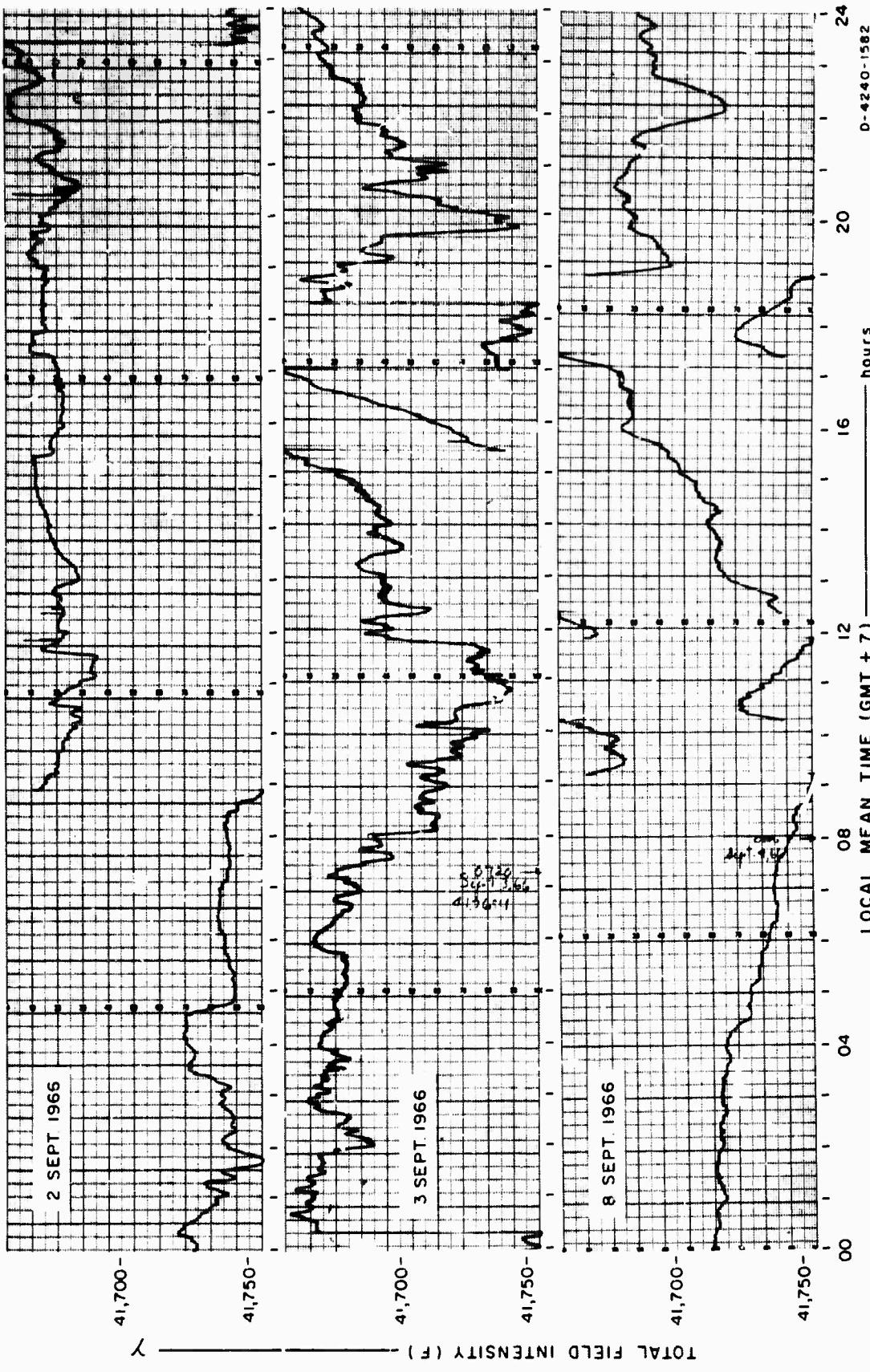


FIG. 6 MAGNETOGrams FOR THE THREE MOST DISTURBED DAYS IN SEPTEMBER 1966

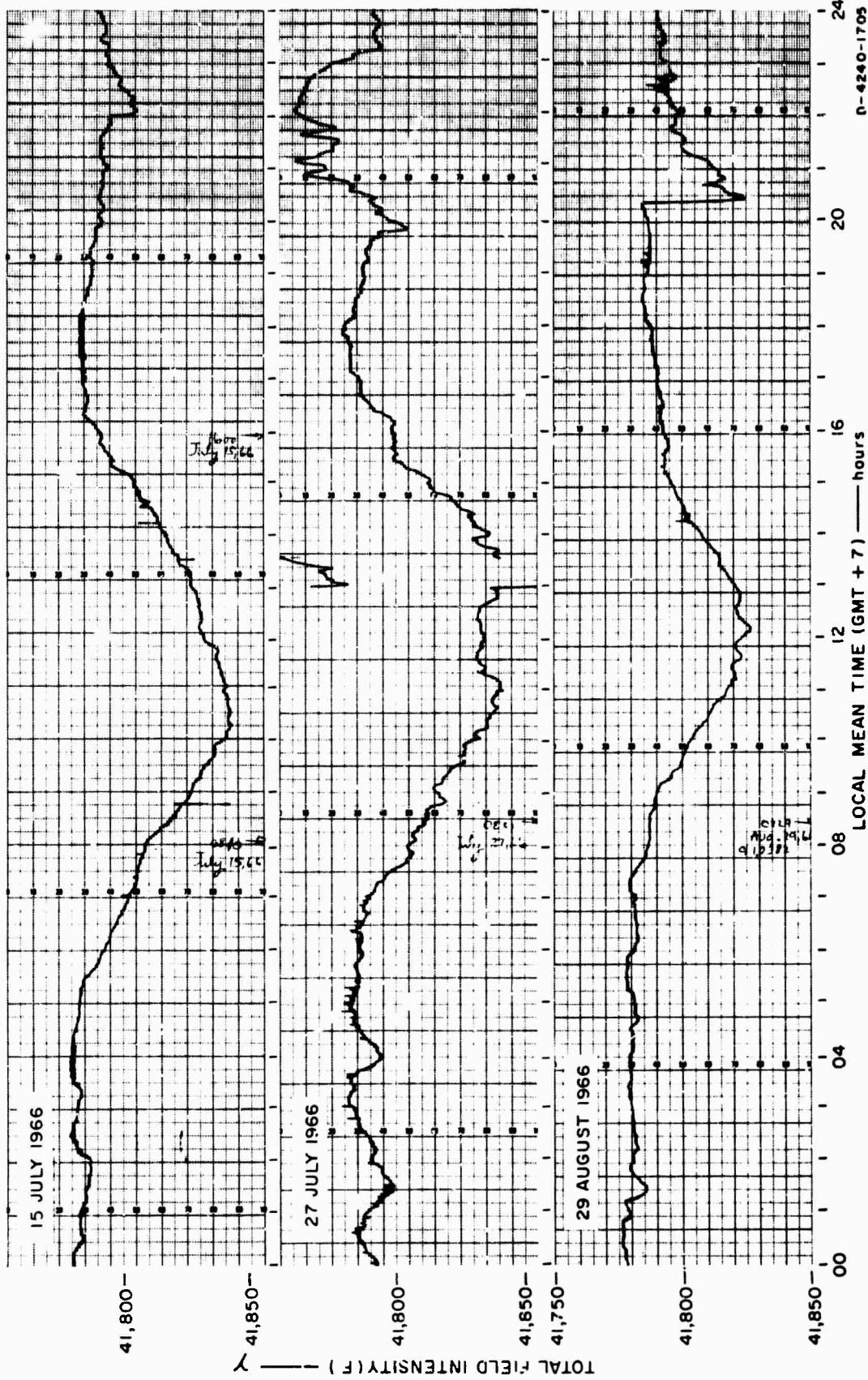


FIG. 7 MAGNETOGrams FOR DAYS OF SUDDEN COMMENCEMENTS: JULY AND AUGUST

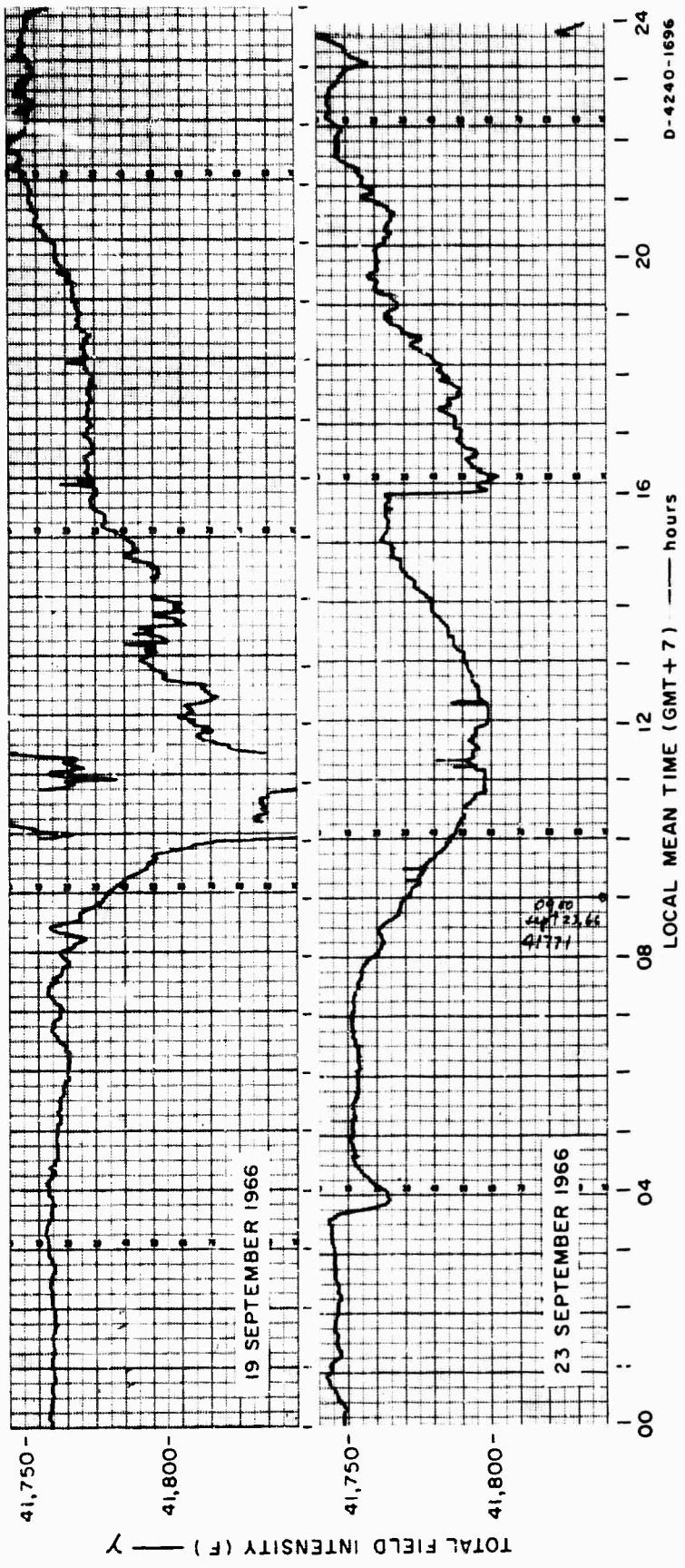


FIG. 8 MAGNETOGrams FOR DAYS OF SUDDEN COMMENCEMENTS: SEPTEMBER

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Security Classification

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